

## CLAIMS:

We claim:

Sub B3  
5 1. A medicament for topical application, the medicament comprising at least one halogenated xanthene as a primary active component, wherein said medicament is useful for photodynamic treatment of human and animal tissue.

2. The medicament of Claim 1 wherein said halogenated xanthene is present in a concentration of greater than 0.001% to less than 20%.

10 3. The medicament of Claim 1 wherein said halogenated xanthene comprises Rose Bengal.

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15 4. The medicament of Claim 1 wherein said halogenated xanthene includes at least one compound selected from the group consisting of Fluorescein; 4',5'-Dichlorofluorescein; 2',7'-Dichlorofluorescein; 4,5,6,7-Tetrachlorofluorescein; 2',4',5',7'-Tetrachlorofluorescein; Dibromofluorescein; Solvent Red 72; Diiodofluorescein; Eosin B; Eosin Y; Ethyl Eosin; Erythrosin B; Phloxine B; Rose Bengal; 4,5,6,7-Tetrabromoerythrosin; Mono-, Di-, or Tribromoerythrosin; Mono-, Di-, or Trichloroerythrosin; Mono-, Di-, or Tricfluoroerythrosin; 2',7'-Dichloro-4,5,6,7-Tetrafluorofluorescein; 2',4,5,6,7,7'-Hexafluorofluorescein; and 4,5,6,7-Tetrafluorofluorescein.

20 5. The medicament of Claim 1 further comprising at least one targeting moiety coupled to said halogenated xanthene.

Sub B3

Sub B5

6. The medicament of Claim 5 wherein said targeting moiety is selected from the group consisting of DNA, RNA, amino acids, proteins, antibodies, ligands, haptens, carbohydrate receptors or complexing agents, lipid receptors or complexing agents, protein receptors or complexing agents, chelators, encapsulating vehicles, short- or long-chain aliphatic or aromatic hydrocarbons, aldehydes, ketones, alcohols, esters, amides, amines, nitriles, azides, and other hydrophilic or hydrophobic moieties.

7. The medicament of Claim 1 wherein said medicament is formulated in a delivery vehicle selected from the group consisting of liquids, semisolids, solids and aerosols

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8. The medicament of Claim 8 wherein said vehicle is selected from the group consisting of aqueous, non-aqueous and nanoparticulate suspensions, solutions, creams, ointments, gels, syrups, suppositories and micro-droplet sprays.

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Sub B5

9. The medicament of Claim 1 wherein said halogenated xanthene is in a delivery vehicle that includes an adjuvant selected from the group consisting of builders, stabilizers, emulsifiers, dispersants, preservatives, buffers, electrolytes, tissue penetrating agents and tissue softening agents.

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10. The medicament of Claim 1 wherein said medicament is useful for the treatment of indications selected from the group consisting of conditions affecting the skin and related organs, conditions affecting the mouth and digestive tract and related organs, conditions affecting the urinary and reproductive tracts and related organs, conditions affecting the respiratory tracts and related

Sub B5  
organs, conditions affecting other internal and external tissue surfaces, conditions affecting tissue surfaces exposed during surgery, and conditions related to microbial or parasitic infection.

11. The medicament of Claim 1 wherein said medicament is useful for photodynamic treatment using a green activating light.

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12. The method of Claim 11 wherein said green light has a wavelength of between approximately 500 nm and 600 nm.

13. Use of a halogenated xanthene in the preparation of a topical medicament for treatment of human and animal tissue using photodynamic therapy.

14. The use of Claim 13 for preparation of a medicament for the treatment of indications selected from the group consisting of conditions affecting the skin and related organs, conditions affecting the mouth and digestive tract and related organs, conditions affecting the urinary and reproductive tracts and related organs, conditions affecting the respiratory tracts and related organs, conditions affecting other internal and external tissue surfaces, conditions affecting tissue surfaces exposed during surgery, and conditions related to microbial or parasitic infection.

15. The use of Claim 13 wherein said halogenated xanthene comprises Rose Bengal.

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16. The use of Claim 13 wherein said medicament is for photodynamic therapy with green activating light.

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17. Use of a halogenated xanthene comprising:  
administering a therapeutically effective amount of a halogenated xanthene to or proximate to human or animal tissue and photoactivating the halogenated xanthene present within or proximate to said tissue.

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18. The use of Claim 17 wherein said halogenated xanthene comprises Rose Bengal.

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19. The use of Claim 17 wherein said halogenated xanthene is photoactivated with green activating light.

20. The use of Claim 19 wherein said green light has a wavelength of between approximately 500 nm and 600 nm.

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21. A pharmaceutical composition for topical administration comprising a halogenated xanthene for treatment using photodynamic therapy.

22. The pharmaceutical composition of Claim 21 wherein said halogenated xanthene is present in a concentration of greater than 0.001% to less than 20%.

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23. The pharmaceutical composition of Claim 21 wherein said halogenated xanthene comprises Rose Bengal.

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24. The pharmaceutical composition of Claim 21 wherein said halogenated xanthene includes at least one compound selected from the group consisting of Fluorescein; 4,5'-Dichlorofluorescein; 2',7'-Dichlorofluorescein; 4,5,6,7-Tetrachlorofluorescein; 2',4',5',7'-Tetrachlorofluorescein; Dibromofluorescein; Solvent Red 72; Diiodofluorescein; Eosin B; Eosin Y; Ethyl Eosin; Erythrosin B; Phloxine B; Rose Bengal; 4,5,6,7-Tetrabromoerythrosin; Mono-, Di-, or Tribromoerythrosin; Mono-, Di-, or Trichloroerythrosin; Mono-, Di-, or Tricfluoroerythrosin; 2',7'-Dichloro-4,5,6,7-Tetrafluorofluorescein; 2',4,5,6,7,7'-Hexafluorofluorescein; and 4,5,6,7-Tetrafluorofluorescein.

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25. The pharmaceutical composition of Claim 21 further comprising at least one targeting moiety coupled to said halogenated xanthene.

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26. The pharmaceutical composition of Claim 25 wherein said targeting moiety is selected from the group consisting of DNA, RNA, amino acids, proteins, antibodies, ligands, haptens, carbohydrate receptors or complexing agents, lipid receptors or complexing agents, protein receptors or complexing agents, chelators, encapsulating vehicles, short- or long-chain aliphatic or aromatic hydrocarbons, aldehydes, ketones, alcohols, esters, amides, amines, nitriles, azides, and other hydrophilic or hydrophobic moieties.

20 27. The pharmaceutical composition of Claim 21 wherein said pharmaceutical composition is formulated in a delivery vehicle selected from the group consisting of liquids, semisolids, solids and aerosols

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28. The pharmaceutical composition of Claim 27 wherein said vehicle is selected from the group consisting of aqueous, non-aqueous and nanoparticulate suspensions, solutions, creams, ointments, gels, syrups, suppositories and micro-droplet sprays.

5 29. The pharmaceutical composition of Claim 21 wherein said halogenated xanthene is in a delivery vehicle that includes an adjuvant selected from the group consisting of builders, stabilizers, emulsifiers, dispersants, preservatives, buffers, electrolytes, tissue penetrating agents and tissue softening agents.

10 30. The pharmaceutical composition of Claim 21 wherein said photodynamic therapy uses green activating light.

15 31. The pharmaceutical composition of Claim 30 wherein said green light has a wavelength of between approximately 500 and 600 nm.

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20 32. A method of treating comprising:  
topically applying a medicament including at least one halogenated xanthene to or proximate to human or animal tissue; and  
illuminating said human or animal tissue to activate said halogenated xanthene present within or proximate to said tissue.

33. The method of Claim 32 wherein said human or animal tissue comprises the skin and related organs, the mouth and digestive tract and related organs, the urinary and reproductive tracts

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and related organs, the respiratory tracts and related organs, other internal and external tissue surfaces, tissue surfaces exposed during surgery, and tissue with microbial or parasitic infection.

34. The method of Claim 32 wherein said step of illuminating uses green activating light.

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35. The method of Claim 34 wherein said green light has a wavelength of between approximately 500 and 600 nm.

36. A topically-applicable medicament comprising at least one halogenated xanthene as a primary active component, wherein such medicament is useful for photodynamic treatment of human and animal tissue.

37. A topically-applicable medicament comprising at least one halogenated xanthene as a primary active component, wherein such medicament is useful for indications selected from the group consisting of conditions affecting the skin and related organs, conditions affecting the mouth and digestive tract and related organs, conditions affecting the urinary and reproductive tracts and related organs, conditions affecting the respiratory tracts and related organs, other conditions affecting internal and external tissue surfaces, conditions affecting tissue surfaces exposed during surgery, and conditions related to microbial or parasitic infection.

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